CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.08/AA/WMM/Gradation/2014-15

03.12.2014

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigahalli Sub Division, BBMP, Bangalore.

Agency : **Mr. Ashwathnarayana Anjanappa,** Contractor, Bangalore.

Name of Work : Improvements of of Roads and drains in 1st cross, Shanthivana in Ward No.08, Kodigahalli Sub Division. (Change of Place: From Kodigehalli Railway Level Crossing to TATA Nagara Main Road Balance), BBMP, Bangalore.

Reference : AEE/KSD/PR/ /2014-15 Dated: 01.12.2014

Date of Testing : 03.12.2014

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **25300**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	1005	1005	4.0	96.0	95-100
22.4	5320	6325	25.0	75.0	60-80
11.2	5345	11670	46.1	53.9	40-60
4.75	4125	15795	62.4	37.6	25-40
2.36	3885	19680	77.8	22.2	15-30
0.600	2690	22370	88.4	11.6	8-22
0.075	2640	25010	98.9	1.1	0-8

Note:

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4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

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03.12.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigahalli Sub Division, BBMP, Bangalore.
Agency	**Mr. Ashwathnarayana Anjanappa,** Contractor, Bangalore.
Name of the Work	Improvements of of Roads and drains in 1st cross, Shanthivana in Ward No.08, Kodigahalli Sub Division. (Change of Place: From Kodigehalli Railway Level Crossing to TATA Nagara Main Road Balance), BBMP, Bangalore.
Reference	AEE/KSD/PR/ /2014-15 Dated: 01.12.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	03.12.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	386	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	300	
4	Aggregate Impact value = percent fines	21.76	22.08	
	100* (W_2/W_1)%			**21.92**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.08/AA/WMM/S-T/2014-15 03.12.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Kodigahalli Sub Division**, BBMP, Bangalore.**
Agency	**Mr. Ashwathnarayana Anjanappa,** Contractor, Bangalore.
Name of Work	Improvements of of Roads and drains in 1st cross, Shanthivana in Ward No.08, Kodigahalli Sub Division. (Change of Place: From Kodigehalli Railway Level Crossing to TATA Nagara Main Road Balance), BBMP, Bangalore.
Reference	AEE/KSD/PR/ /2014-15 Dated: 01.12.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	03.12.2014

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Result : Flakiness Index = **12.36%**

Elongation Index = **13.25%**

Result : Combined Flakiness & Elongation index 25.61%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Basaveshwaranagar,
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Job No.: CTCE/BBMP/W.No.08/AA/WMM/AL/2014-15

03.12.2014

ATTERBERG LIMITS TEST FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigahalli Sub Division, BBMP, Bangalore.

Agency : **Mr. Ashwathnarayana Anjanappa,** Contractor, Bangalore.

Name of Work : Improvements of of Roads and drains in 1st cross, Shanthivana in Ward No.08, Kodigahalli Sub Division. (Change of Place: From Kodigehalli Railway Level Crossing to TATA Nagara Main Road Balance), BBMP, Bangalore.

Reference : AEE/KSD/PR/ /2014-15 Dated: 01.12.2014

Date of Testing : 03.12.2014

Material : WMM

Sample Location : WMM Mix Plant

As per MORTH Table 400-11

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	23.00	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CTCE/BBMP/W.No.08/AA/BC/Bitumen/2014-15 16.12.2014

BITUMEN CONTENT DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Kodigahalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. Ashwathnarayana Anjanappa,** Contractor, Bangalore.
NAME OF THE WORK	Improvements of of Roads and drains in 1st cross, Shanthivana in Ward No.08, Kodigahalli Sub Division. (Change of Place: From Kodigehalli Railway Level Crossing to TATA Nagara Main Road Balance), BBMP, Bangalore.
REFERENCE	AEE/KSD/PR/ /2014-15 Dated: 01.12.2014
SAMPLE I/D	Tatanagara Main Road Balance Work Ward No.08.
DATE OF TESTING	16.12.2014

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	26.00
7. Bitumen content in %	5.20	5.20
8. Average	**5.20**	

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Job No.: CTCE/BBMP/W.No.08/AA/BC/Bitumen/2014-15 16.12.2014

GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IS2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Kodigahalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. Ashwathnarayana Anjanappa,** Contractor, Bangalore.
NAME OF THE WORK	Improvements of of Roads and drains in 1st cross, Shanthivana in Ward No.08, Kodigahalli Sub Division. (Change of Place: From Kodigehalli Railway Level Crossing to TATA Nagara Main Road Balance), BBMP, Bangalore.
REFERENCE	AEE/KSD/PR/ /2014-15 Dated: 01.12.2014
SAMPLE I/D	Tatanagara Main Road Balance Work Ward No.08.
DATE OF TESTING	16.12.2014

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	42.25	8.91	8.91	91.09	79-100
9.5	38.56	8.14	17.05	82.95	70-88
4.75	62.25	13.13	30.18	69.82	53-71
2.36	89.65	18.91	49.09	50.91	42-58
1.18	45.28	9.55	58.65	41.35	34-48
0.6	39.52	8.34	66.99	33.01	26-38
0.3	28.54	6.02	73.01	26.99	18-28
0.15	50.26	10.60	83.61	16.39	12-20
0.075	50.28	10.61	94.22	5.78	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	41.56	8.77	8.77	91.23	79-100
9.5	40.25	8.49	17.26	82.74	70-88
4.75	75.56	15.94	33.20	66.80	53-71
2.36	59.68	12.59	45.79	54.21	42-58
1.18	71.23	15.03	60.82	39.18	34-48
0.6	40.15	8.47	69.29	30.71	26-38
0.3	35.58	7.51	76.80	23.20	18-28
0.15	47.25	9.97	86.76	13.24	12-20
0.075	49.86	10.52	97.28	2.72	4-10

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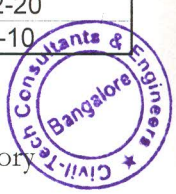

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23/14, 7th Cross, 3rd Stage, Basaveshwaranagar, Bangalore-79.

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#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com